

Applicant : Konstantin V. Rodyushkin et al.  
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Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-26. (Cancelled)

27. (Currently Amended) A computer-implemented method comprising:  
using a processor to perform the steps of:

receiving a first digital image in a sequence of digital images and eye and mouth coordinates;

outputting eye and mouth coordinates on a subsequent digital image in the sequence of digital images; and

computing transformation parameters that represent a transformation from a base face model for the first digital image to a subsequent deformable model for the subsequent digital image;

wherein receiving comprises estimating the base face model, denoted  $M_b$ , and the base face model's transformation parameters, denoted  $T'$ , by the eye and mouth coordinates;

wherein outputting comprises:

calculating an initial model, denoted  $M$ , for the subsequent digital image as a transformed base model  $M_b$  using the transformation parameters  $T'$ ,

rotating the subsequent image to the first digital image, denoted  $I(x,y)$ , to generate a normalized model of the initial model  $M$ ;

calculating a horizontal and vertical gradient map on the rotated image; and

estimating new transformation parameters, denoted  $T^*$ , by minimizing an energy function  $E(T, I(x,y))$  representative of the goodness of fit between the transformed model

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and the corresponding digital image, and of the optimality of the new transformation parameters, where  $T^*$  corresponds to the complex argument of the minimum of the energy function, denoted  $\arg \min_T E(T, I(x, y))$ .

28-30. (Cancelled)

31. (Previously Presented) The method of claim 27 in which minimizing comprises a downhill simplex method with initial transformation parameters  $T = T'$ .

32. (Previously Presented) The method of claim 27 further comprising calculating the eye centers and the mouth corners by the transformed base model using the transformation parameters  $T^*$ .